

AT&T's current 5G is slower than 4G in nearly every city tested by PCMag

AT&T phones often get just 5MHz of 5G spectrum, slowing them down in speed tests.

JON BRODKIN - 9/8/2020, 11:51 AM



An AT&T sign and logo on Main Street during the Sundance Film Festival on January 23, 2020 in Park City, Utah.

Getty images | Mat Hayward

AT&T smartphone users who see their network indicators switch from "4G" to "5G" shouldn't necessarily expect that they're about to get faster speeds. In PCMag's annual mobile-network testing, **released today**, 5G phones connected to AT&T got slower speeds than 4G phones in 21 out of 22 cities.

PCMag concluded that "AT&T 5G right now appears to be essentially worthless," though AT&T's average download speed of 103.1Mbps was nearly as good as Verizon's thanks to a strong 4G performance. Of course, AT&T 5G should be faster than 4G in the long run—this isn't another case of AT&T **misleadingly labeling** its 4G network as a type of 5G. Instead, the disappointing result on PCMag's test has to do with how today's 5G phones work and with how AT&T allocates spectrum.

The counterintuitive result doesn't reveal much about the actual differences between 4G and 5G technology. Instead, it's reflective of how AT&T has used its spectrum to deploy 5G so far. As PCMag explained, "AT&T's 5G slices off a narrow bit of the old 850MHz cellular band and assigns it to 5G, to give phones a valid 5G icon without increasing performance. And because of the way current 5G phones work, it often reduces performance."

AT&T's 4G network benefits from the aggregation of channels from different frequencies. "The most recent phones are able to assemble up to seven of them—that's called seven-carrier aggregation, and it's why AT&T **won [the PCMag tests] last year**," the article said.

5G phones can't handle that yet, PCMag analyst Sascha Segan wrote:

But 5G phones can't add as many 4G channels to a 5G channel. So if they're in 5G mode, they're giving up 4G channels so they can use that extremely narrow, often 5MHz 5G channel, and the result is slower performance: faux G. For AT&T, using a 5G phone in testing was often a step *backward* from our 4G-only phone.

More specifically, "at locations with both 4G and 5G, our 5G phone was slower than our 4G phone in 21 out of 22 cities," the article said. While AT&T 5G phones often accessed just 5MHz of spectrum, Segan wrote that his analysis shows it "takes at least 50MHz of dedicated 5G spectrum to make a real difference."

The difference was stark in some cities. In Baltimore, where AT&T provided average speeds of 117.1Mbps, "kicking into 5G mode... reduc[ed AT&T's] average download speeds by a shocking 61 percent across the city," PCMag **wrote**.

T-Mobile 5G wasn't always faster than 4G. In **Austin**, T-Mobile had the most 5G availability of any carrier, but "its 5G results were 17 percent slower than its 4G results at locations where both networks were available."

PCMag has been testing mobile networks for 11 years and had to adjust how it reported results this year because of the curious 5G results, Segan noted on Twitter:

PCMag said it conducted tests with Samsung Galaxy S10 and S20 phones, chosen "because they offer the best 4G and 5G performance available, with the S20 supporting all the different types of 5G US carriers have to offer."

AT&T said early 5G would be similar to 4G

We asked AT&T if it plans any changes, such as assigning more than 5MHz to the 5G channel or switching phones back

to 4G when it's the fastest option, and will update this article if we get a response.

In November 2019, **AT&T said** its early 5G deployments on the 850MHz band would only offer speeds that are similar to LTE-Advanced, a form of 4G that AT&T has **misleadingly called** "5GE" or "5G Evolution."

Despite the 5G slowdown in PCMag tests, AT&T's strong 4G performance helped it achieve an average download speed of 103.1Mbps, ahead of T-Mobile's 74Mbps and behind Verizon's 105.1Mbps. AT&T also provided speeds above 10Mbps in 95 percent of tests, the highest of the three carriers. PCMag testers were able to get an AT&T 5G signal 38 percent of the time, compared to T-Mobile's 54 percent and Verizon's 4 percent.

(Verizon 5G uses only millimeter-wave spectrum that has a much smaller reach than low- and mid-band spectrum.)

AT&T won the overall speed title in 12 out of 26 cities, compared to 13 for Verizon and one for T-Mobile. AT&T offers 5G in 22 of the 26 cities tested.

PCMag didn't test rural areas this year because it had to adjust procedures for the pandemic. Instead of a travel schedule involving flights, rental cars, and hotels, PCMag said it hired "two dozen drivers to each test their own cities."

Verizon 5G network “mind-blowing” but tiny

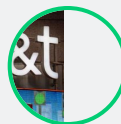
The lack of rural tests means the averages found by PCMag are likely higher than the nationwide reality. OpenSignal, which relies on user-initiated speed tests, **recently found** average download speeds of 32.6Mbps for AT&T, 28.2Mbps for T-Mobile, 27.4Mbps for Verizon, and 25.4Mbps for T-Mobile subsidiary Sprint. Those speeds include all networks, not just 5G.

OpenSignal found **average 5G speeds** of 494.7Mbps for Verizon, 60.8Mbps for AT&T, and about 49Mbps for both T-Mobile and Sprint.

PCMag and OpenSignal tests agree that Verizon's 5G network is the hardest one to find. Users of OpenSignal's speed-test app were able to get a Verizon 5G signal just 0.4 percent of the time, compared to 22.5 percent for T-Mobile, 14.1 percent for Sprint, and 10.3 percent for AT&T.

"Verizon's 5G is often mind-blowing, but very difficult to find," PCMag wrote. Though it can offer "speeds up to 2Gbps and latencies well under 10ms," Verizon 5G was often available in only two or three percent of locations in individual cities.

Verizon 5G's ultra-high speed and sparse availability are not surprising because it uses the 28GHz spectrum band, which offers plenty of capacity but without the ability to cover long distances or penetrate walls and other obstacles. AT&T and T-Mobile 5G use the same low-band spectrum bands they use for 4G, ensuring wider coverage but without huge speed boosts.



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